

SUBSTITUTE ABSTRACT

An integrated device transmits and/or receives information by means of millimetric waves (wavelength 1 mm-10 mm), frequencies of 30 to 300 Ghz. The device has an optoelectronic integrated circuit that interfaces with an antenna able to transmit and/or receive millimeter wave signals. The device forms a transceiver module to be used in a wireless or mobile radio local area network. The transmitter circuit is constituted by a laser in passive mode-locking. The receiver circuit is constituted by an antenna, a photodiode, and a laser identical to that of the transmitter. The photodiode, by means of appropriate bias, performs a dual function of optical and electrical mixer. In particular, the first function converts to electrical frequency the optical beat signal between two modes generated by the laser, the second function allows the received signal to be brought back to base band, thereby allowing the extraction of the modulating signal from the weak signal received through the antenna.